

Notice of Allowability

Application No.

10/040,717

Examiner

Allen C. Ho

Applicant(s)

SINGER ET AL.

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 25 November 2005.
2. ☒ The allowed claim(s) is/are 3-16, 19-21 and 24-26.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Drawings

1. The drawings filed on 25 February 2004 have been accepted by the examiner.

Allowable Subject Matter

2. Claims 3-16, 19-21, and 24-26 are allowed.
3. The following is an examiner's statement of reasons for allowance:

With regard to claims 3-8 and 12, although the prior art discloses illumination systems for lithography with wavelengths ≤ 193 nm comprising a first optical element divided into first raster elements and lies in a first plane, wherein at least two of the first raster elements have different aspect ratios, and a second optical element divided into second raster elements, it fail to teach or fairly suggest that at least some of the second raster elements have an anamorphic optical effect such that an aspect ratio of images of the first raster elements is substantially the same in the object plane independent of the aspect ratio of the first raster elements as claimed.

With regard to claims 9-11, 13, and 19, although the prior art discloses illumination systems for lithography with wavelengths ≤ 193 nm comprising a first optical element divided into first raster elements and lies in a first plane, wherein at least two of the first raster elements have different aspect ratios, it fails to teach or fairly suggest that all of the first raster elements are completely illuminated in the first plane as claimed.

With regard to claim 14, although the prior art discloses an illumination system for lithography with wavelengths of ≤ 193 nm comprising a first optical element which is divided

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into first raster elements and lies in a first plane, wherein the at least two of the first raster elements have aspect ratios of different magnitude, and wherein the illumination system defines a segment of a ring field in an object plane, it fails to teach or fairly suggest that the first raster elements are mirrors as claimed.

With regard to claims 15 and 16, although the prior art discloses a projection exposure system for microlithography that comprises an illumination system for lithography with wavelengths of ≤ 193 nm having a first optical element which is divided into first raster elements and lies in a first plane, wherein the at least two of the first raster elements have aspect ratios of different magnitude, and wherein the illumination system defines a segment of a ring field in an object plane, it fails to teach or fairly suggest that the first raster elements are mirrors as claimed.

With regard to claims 20 and 24, although the prior art discloses an illumination system comprising an optical element having a first raster element on a support structure and a second raster element on the support structure, the first raster element has a first aspect ratio, the second raster element has a second aspect ratio, wherein the first aspect ratio is not equal to the second aspect ratio, it fails to teach or fairly suggest that the first raster element and the second raster element are mirrors as claimed.

With regard to claims 21 and 25, although the prior art discloses an illumination system for radiation wavelengths of ≤ 193 nm comprising an optical element having a first raster element in a plane on a support structure and a second raster element in the plane on the support structure, wherein the first raster element and the second raster element are of different sizes, it fails to teach or fairly suggest that the first raster element and the second raster element are mirrors as claimed.

With regard to claim 26, although the prior art discloses an illumination system for radiation of wavelengths ≤ 193 nm comprising an optical element having a first raster element situated substantially in a plane and a second raster element situated substantially in the plane, wherein the first and the second raster element are of different sizes, it fails to teach or fairly suggest that the first raster element and the second raster element are mirrors as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Schultz (U. S. Patent No. 6,704,095 B2) disclosed an illumination system.
- (2) Okuyama *et al.* (U. S. Patent No. 6,637,892 B1) disclosed a projection apparatus.
- (3) Yamamoto (U. S. Patent No. 6,402,325 B1) disclosed an illumination system comprising a first optical element which is divided into first raster elements and lies in a first plane, wherein the at least two of the first raster elements have aspect ratios of different magnitude.
- (4) Koch *et al.* (U. S. Patent No. 6,195,201 B1) disclosed a reflective fly's eye condenser for EUV lithography.

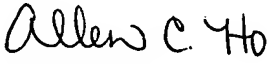
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- (5) Mizouchi (U. S. Patent No. 5,963,305) disclosed an illumination system and exposure apparatus comprising an optical element, wherein a first raster element and a second raster element are of different sizes.
- (6) Kamon (U. S. Patent No. 5,251,067) disclosed an optical element, wherein a first raster element and a second raster element are of different sizes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Allen C. Ho
Primary Examiner
Art Unit 2882

26 December 2005